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ABSTRACT

Computer networks connecting members of a class can provide an effective, efficient means to exchange commentary, field and answer questions, submit and grade assignments, and post class information. Mainframe networks--large computers used by universities before the advent of microcomputers--serve the needs of many users at once. Mainframe users send and receive messages through "electronic mail," connecting them with other users. This information sharing, or "connectivity," can be adapted to create communication networks between instructors and students. A computer applications specialist is helpful when designing an educational computer network using a mainframe computer. The advantages of a computer network include the timeliness of the interactions, the computer's word processing capabilities, the ease of evaluating assignments, and the facilitation of communication between the instructor and students. In addition, the discussion forum created through electronic mail can successfully extend classroom discussions. Network and mainframe software capabilities allow an instructor to design specific applications for a variety of communication courses, such as public speaking, organizational communication, and journalism. Both students and instructors can benefit from increased interaction opportunities and from the experience gained in computer-mediated communication. (A computer word processing and communication manual for a news writing course, and nine references are appended.) (MM)

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Discovering All the Available Means for Computer Assisted Instruction: Adapting Available University Facilities for the Small to Medium-sized Course

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Discovering All the Available Means for Computer Assisted Instruction:
Adapting Available University Facilities for the Small to Medium-sized Course

Certainly the most popular teaching aid today is the computer. Computer use in grades K-12 is growing, so much so that a new California state law requires future teachers to take computer courses after completing undergraduate studies (Bruder, 1988). Most of the applications used by K-12 instructors are tutorials, where students "interact" with microcomputer software in a learning situation. While primary and secondary school computer users find a "slow growth" of educational software for their classrooms (McCarthy, 1988), university faculty have even less alternatives. A recent compilation of educational software sources reveals that out of 76 software publishers, only 19% provided programs suitable for university students. Furthermore, these university level programs concentrated in the areas of science, foreign language, writing, and reading.

Computer tutorials for university level communication courses are rare. One alternative is computer programs used by professionals for business analysis. While scholars in the field of communication have been successful in adapting business and professional software and other applications for use in their classes (Morgenstern, 1987; Bradley, 1987) it takes considerable expertise to uncover, test, adapt, and then implement these programs. Thus, many who are new to the computer may shy away from using it in their classes. College and university faculty who have recently become computer enthusiasts need computer resources that are readily available and easy to learn.

There is another alternative for computer-enhanced instruction that is easy to manage and has proven to be an effective teaching aid in communication courses (Hiltz, 1987; Phillips, Santoro, Kuehn, 1988). Computer networks connecting members of a class can provide an effective, efficient means to

exchange commentary, field and answer questions, submit and grade assignments, and post class information. Networks take advantage of a university computer, an instructor sets up computer accounts for herself and her students, and uses the computer's ability to send messages among users. The use of computer networks is growing. EDUCOM, a 500-member college and university information technology consortium, has recently cited networking as a key area of educational development on college and university campuses (Revenaugh, 1988). College and university faculty can often take advantage of existing facilities to create networks. All that is needed is to determine what resources are available and to adapt the facilities for use in particular course situations.

Mainframe Networks

Before the advent of microcomputers in the early 1980's, colleges and universities relied on large computers to store administrative data and to provide learning experiences for computer science and technology students. Today, these "mainframe" computers can serve the needs of many users at once. Many of us in the field of communication have had experience with mainframe computer applications, especially with statistics programs like SAS and SPSSx. One feature of mainframe systems that may have gone unnoticed is "electronic mail." Mainframe users have the ability to send and receive messages to and from other users. Computer specialists have labeled the ability of computer users to share information "connectivity."

University mainframe connectivity can be adapted to create communication networks between instructors and students. Phillips, Santoro, and Kuehn (1988) used a computer network to connect two large sections of a group communication class. The system provided student/instructor and

student/student interaction. An electronic "bulletin-board" provided information about the course, and assignments were submitted through the computer network. Evaluation research revealed that the network worked effectively and efficiently as an information search and processing system for students, and as a tool for monitoring student progress (Kuehn, 1987).

Designing an Educational Computer Network

Most colleges and universities provide computer applications specialists who can help faculty members adapt mainframe features for class use. There are important questions to ask the computer applications specialist. The first step in designing a system is to find out what is available on your campus. Facilities are important. Can the mainframe support the number of students in your course with an adequate number of video display terminals that are easily accessible? Difficulties could arise if the ratio of terminals to students is small enough to cause problems, especially at a time in the semester when computer use is likely to be heavy because of assignment due dates. A faculty member should also determine if mainframe access is convenient for them. Grading assignments in student computer labs does not afford much privacy. However, computer application specialists may help faculty members obtain equipment that can access the mainframe from a location more convenient to the faculty member. Terminals can be placed in offices that can connect with the computer by phone lines using a device called a modem. Modems can also be used to connect personal computers to mainframes. The computer application specialist is a vital link for faculty who wish to connect to university mainframe opportunities (Phillips, Santoro, & Kuehn, 1988).

A second area of help that can be provided by computer applications specialists is in adapting the functions of the computer to make them "user-friendly" for faculty and students. Mainframe computer environments were developed for specialists and are often bewildering to novice users. However, complex commands and functions can be modified by specialists to make them quick and easy (Phillips, Santoro, & Kuehn, 1988). There is a good chance that modifications have already been made to your system, as computer specialists have come to recognize the growing use of computers by nontechnicians on college and university campuses.

An important facility at most universities is documentation. Check the availability of materials that explain the use of the university mainframe on your campus. You will probably find that a regularly updated manual or handbook is published locally by the university computer center for student users of the mainframe. These manuals and handbooks are often available at university bookstores and may be found on required book lists for beginning computer and technology student courses. If the manual or handbook is written clearly and you find it useful, you may want to put it on your required text list for your course. If your application specialist modifies the computer environment for your course, you may consider writing and distributing your own shortened version of a computer handbook. A handbook written for a news writing course is presented in the appendix.

The Functions of the Computer Network

There are many advantages of using a computer network for class communication. One advantage is timeliness. Students who have questions or concerns about the class or course work can contact the instructor at their

convenience with a computer note. Perhaps office hours are not convenient for the student. The student can type a note at a computer terminal, send it to the instructor, who can reply at a convenient time. Electronic "bulletin boards" containing pertinent due dates and other class news can be provided for network users (Santoro, 1987). Thus, computer networks can answer many questions quickly. While not a replacement for office hours, the "electronic mailbox" makes it simple and convenient to answer many student concerns.

Another advantage of using a network comes with word processing capabilities of the computer. Students can type documents for assignments and send them to the instructor to grade. The instructor can grade the assignments electronically, inserting comments where needed, and send the graded assignments back through the network to students. If a paper "hardcopy" is needed, it can printed at a university printer. This efficient electronic process not only saves time and red ink, but also provides storage and access. All assignments, projects, and exercises can be stored in the instructor's account. When questions come up, an instructor can work through an assignment with a student, the document can easily be pulled out of storage and viewed or printed on paper.

The computer network can serve as much more than just a document processor and distributor. Students can be encouraged to open up communication channels with their instructor and with each other. Discussion forums can also be created on the computer network. Students can send comments on readings and class discussion to the instructor and/or to other members of the class. They can take positions in their electronic mail messages and respond to the positions of others. This system has worked well in upper-level undergraduate courses and in graduate courses (Santoro, 1987).

Using computer-mediated communication, instructors can act as commentators and moderators of discussion that extends beyond the classroom.

Many university mainframes provide computer applications that can augment work in class. A research course can use statistical packages such as SAS, SPSSx, and BMDP to introduce statistical tools. Many university mainframes also have databanks (such as U.S. Census information) that can be analyzed in class assignments. In addition to word and numerical processing, a mainframe computer may have connections to other databases. Students who discover these links may find information on a variety of topics quickly and easily.

Finally, mainframes usually have a "dial-in" facility that allows users to connect by phone lines. If an instructor has a microcomputer at home, the chances are, with a modem and the proper software, the instructor can connect with the mainframe and work at home. The blend of microcomputer and mainframe opens a wide range of opportunities. For instance, it is possible to create documents using microcomputer software and "upload" the documents to the mainframe computer. Similarly, connectivity allows an instructor to "download" student documents to a microcomputer floppy or hard disk, where they can be edited, and perhaps later "uploaded" to be distributed back to students. Thus a wide range of microcomputer software can be used to create and process information that can be later distributed to students on the mainframe computer network.

Applications of Computer Networks in Communication Courses

Computer networks can be used in a variety of communication courses. The network and mainframe software capabilities allow an instructor to design specific applications.

Introductory public speaking courses could use the computer network to facilitate instructor/student interaction. Students often submit topic proposals and outlines for approval before they give speeches. Instructors could use the word processing and connectivity functions to enable students to transmit their outlines for approval by electronic mail. Instructors can insert comments and demonstrate effective outlining for students. Sample outlines can be provided for student perusal.

Public speaking students may also make the instructor aware of scheduling problems (a fact of life in public speaking courses) and can ask specific questions about course material by e-mail. If the mainframe is connected to databases, students can quickly find up-to-date sources of information from statistics on drunken driving to recent court cases. An electronic bulletin board could be used to remind students of due dates and class activities.

A computer network has been successfully adapted for use in an upper-level group communication course at Penn. State University (Phillips, Santoro, & Kuehn, 1988). Students are organized into groups at the beginning of the semester, and all are given computer accounts. The groups use a programmed course of instruction based on the standard agenda, and file reports every three weeks to their instructor (Phillips, Santoro, & Kuehn, 1988). These reports provide the instructor with information about group progress in accomplishing an assigned task. The computer network is modified to provide a user-friendly environment, and a handbook is also given to students. Groups are free to contact their instructors and each other to share information and sources, as well as use connections to databases to discover alternative sources of information that may not be found in the library.

An application of microcomputer software has enabled the Penn. State program to assess group relations. SYMLOG, an assessment and research tool developed by Robert F. Bales and colleagues at Harvard University (Bales and Cohen, 1979) has been used to produce helpful feedback. SYMLOG provides a chart that can be used to postulate about group members' perceptions of each other. Instructors at Penn. State have adapted a microcomputer program that draws SYMLOG charts for use on their network (Kuehn, 1987). Students fill out a questionnaire on the computer about their group relations. The answers they provide are a set of numbers that are sent to their instructors. This questionnaire data is "downloaded" from the Penn. State mainframe to a microcomputer disk where it is analyzed with the SYMLOG software. The SYMLOG program produces a chart on the disk, which is then "uploaded" and sent to groups. A chart is created for each group. Students are then instructed to print out charts and bring them to class, where their instructor sits down with them and helps them with interpretation.

A similar method can be used in an organizational communication course. Depending on the resources of the instructor, students can be placed in a simulated corporate environment where information can be exchanged through the computer network. Myrna Foster-Kuehn at Clarion University of Pennsylvania has developed a corporate environment using a computer network. Students are organized into groups, who form mock corporations that market a service or product. Each group advertises a set of positions that are to be filled. Students make appointments for interviews, each student interviews and each student acts as an interviewee.

The connectivity function can be used in an organizational communication course to monitor student work in small groups and to provide groups of students access to other groups. Organizational networks with computer

mediated links can be established, with simulated hierarchies. Many of the tasks students can perform in class will mimic real-life use of computer networks in organizations.

Journalism courses can use computer mediated communication to establish an "electronic" newsroom. Students can type their assignments at a terminal and submit them to an instructor/editor by an established deadline. Mainframe electronic mail messages provide the time and date the message was sent, so deadlines can be checked by the instructor. The stories can be graded and sent back to students.

Students can also use the network to "obtain leads" from their editor, ask questions about assignments, and to use databases for background information. In addition, an instruction forum can be set up to discuss issues that journalists face, a recent example is the Dan Rather - George Bush CBS Evening News confrontation.

Upper level communication research courses can make good use of a computer network. Students can access their instructor for questions. Statistical packages are available to introduce students to data analysis. Word processing capabilities can be used to create assignments like a research prospectus. In courses where students conduct research, progress reports can be filed on the computer network. Database resources can be used to obtain bibliographic materials.

The discussion forum would be a valuable application for communication issues courses such as "Media Issues." Students can comment on their readings and may be assigned to send comments to their instructor. Depending on the instructor's preference, these comments may be distributed to the class as a whole, where all students can discuss issues among themselves. Taking a

stance can thus provide students with experience in reasoning and argumentation while learning about the world around them.

The discussion forum would seem to be most successful in graduate level courses. Graduate students could be assigned position papers on various units of study, and the discussion can be extended out of the classroom through the computer network. This exchange of ideas provides graduate students with the opportunity to fine tune their ideas into structured lines of reasoning that may grow out of the classroom.

Summary

The connectivity of computer networks can be used in a variety of situations to enhance classroom experience. The network can be used for more than just "paper-shuffling," it can extend teacher/student contact to the "virtual classroom" (Hiltz, 1986). Through the help of a computer applications specialist, both instructor and student can make use of technology that is changing communication links in many businesses. The students and instructor can benefit from increased interaction opportunities and from the experience gained in computer mediated communication. Modern information processing and data search capabilities further add to students' repertoires of marketable skills.

COMM 200

News Writing I

Computer Word Processing and Communication Manual

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INTRODUCTION

The purpose of this manual is to help you get started using the COMM 200 news room computer system. It can serve as a helpful reminder of the commands that you will grow accustomed to after you use the system a couple of weeks. This manual will not replace practice, however. You will find that the more you use the system, the better you will remember the procedures and the quicker you will write your news copy.

You may have experience using computer systems before, if so, you will find the COMM 200 system easy to learn and master. However, this manual is written for the person who has never used a computer system. If you have no experience using a computer, you can learn from scratch with this manual by your side.

This manual does not come close to providing all the commands and utilities available on the COMM 200 system. It will help you get started, but will not give you detailed instructions on complex tasks. For those who wish to learn more about the computer system, I can provide information. You can ask me for help through electronic mail, or you may even find some other classmates may have the information. Either way, it is up to you. You can do comfortable work using 10 commands, or you may like to experiment, in which case the wide variety of UNIX software is at your command. You can learn as much as you wish to make you feel comfortable using the system, as long as you can use the system competently. If you need emergency help, contact me on the computer system by typing:

```
mail kuehn  {hit return}
your message....
^d  {hit the Control and the d keys at
    the same time}
```

This will send a message to my computer account, and I can get back to you and help you with your problem latter.

This computer system is provided for use with assignments and exercises in COMM 200. You should not be using this system for work in other classes. We will be sharing the system with students in computer science courses and there is simply not enough computer time available for other projects. Also it is **very important** that no other person besides yourself have access to your account. You could lose your account if the system managers find unauthorized people using it.

The Computer and Information Science Department has provided this system to you as a privilege. Out there, in the "real world," computer time costs money and is carefully guarded. All computer usage in the COMM 200 system is monitored by the director of the Computer and Information Science Computer Center. This person has access to all files and all file transactions. In a way, no privacy exists on this computer system, so, in the words of George Orwell, "Big brother is watching!" **Students found to be abusing the computer system will automatically lose their access to the system and may fail COMM 200.**

Getting Started

Our computer system uses the Zilog minicomputer in the Becker Hall computer center in 152 Becker. We will put in our stories and assignments at the ADM 5 Terminals. These are the video display units that are molded together with keyboards, you will see 25 of them arranged in two rows right as you enter the room. There is a printer available at the foot of the row and we will be able to use it to print our documents. Be careful to note the lab hours when they are posted in the beginning of the semester. The only terminals connected to our computer are in 152 Becker, so you will have to do your typing work there. However, you have access to the terminals during any of the computer lab hours.

When you sit down in front of the terminals they appear to be turned off. However, they actually have power, it's just that the screen is blank because the "brightness" control is purposely dimmed down. The computer center wants you to keep the terminals on, so you do not have to turn it off when you are finished using it, just dim the screen. Dimming the terminal keeps the cathode ray tube from "burning in" a pattern of letters. To view the display turn the black knob with the white circle clockwise. The screen should brighten and you should see a message that asks you to "login." If you don't see the message, press return. If the message still does not appear, ask one of the computer center lab assistants for help.

Once you get the login message, type your login name and press return. The computer will now ask you for your password, a secret word that only you should know. Type in your password and press return.

Note: you will not see your password printed on the screen. This is the computer's way of keeping your password secret, by not allowing anyone to glance over your shoulder.

If your login name and password pass computer inspection, the computer will provide you with a prompt that uses the % character. The % prompt means you have entered the system (called UNIX) and it is waiting for you to give a command.

The Shell

The first stop on our way to writing and sending documents is the UNIX shell. After we have logged in and have obtained a system prompt (%), we know we have reached the UNIX system shell. In a way, the "shell" is the outer layer of our computer system. It is in the shell that we can do general tasks like check the names of our documents, read our mail, send mail, and print our assignments and exercises on the printer. Thus the shell is like a general workroom, allowing us to pick the right tools and leading the way to other tasks "inside" the shell.

Practice getting in and out of the shell. If you are already logged in as you are reading this, type **logout** and press return. The machine will log you off, and provide a new login prompt. Login again, using the procedure discussed above. This time, when you receive the system prompt (%) type **ls** and

press return. The command **ls** stands for "list" and provides you with a list of the files that you have stored away. A file is a collection of symbols, the types of files we will be using in this class are symbols that are written words. Files also may contain symbols that are used in computer programs, but we will not be creating such files. Think of files in the same way you picture a filing cabinet. The command **ls** will provide a list of the documents you have stored in your file drawers. From now on I will refer to these documents as "files."

After the computer has provided a list it will give you another system prompt (%). Another very useful command you can do now is **passwd**. **Passwd** stands for password, if you haven't already guessed, and this command allows you to change your password to a word you can easily remember. The only requirement is that you choose a word about 7 characters long that contains a numeral. For example, acceptable passwords are: budman1, jumper5, primal7, etc.

To change your password, type **passwd** at the % prompt and press return. The system will ask you to enter your current password, which would prevent someone else from changing your password. Next, the system will ask you to enter your new password. Finally, it will ask you to enter the new password again to make sure you typed in what you wanted the first time. You will notice that the screen does not show your old and new passwords as you are changing them. Don't forget to make at least a mental note that you have changed your password. If you forget your password it could take a long time to recover your account for you, and you may lose valuable work time.

Now type **logout** and press return. Repeat the login procedure with your new password. It's probably a good idea to practice a few times so that you become comfortable using the login procedure with your new password. Practice will also put the login procedure in your long term memory, so that you will not have to worry about forgetting the tasks the next time you login.

It is very important that you logout at the end of each session on the computer. Make sure that your account is logged out so that someone else doesn't accidentally get into your account. If something happens and it seems your machine has locked up, ask a lab assistant for help. Under no circumstances should you give up and leave a terminal before you have made sure you have logged out. Also, don't forget to dim the video display before you leave your station!

Creating, Saving and Deleting Files

Once you know how to get in and out of the shell you have progressed half way through the system. Now it is time to learn to produce files. Like I mentioned before, the files we will create are typed versions of news stories and other assignments. When you create documents on the computer, computer experts say you are **word processing**. You may already have used a word processing program on a microcomputer such as an IBM PC or IBM PS/2, Apple Mackintosh, or some other type. If you have used a computer to do word processing you know how much time you can

save once you know how to use the software. You are able to make corrections without retyping on paper (saving gallons of correction fluid and miles of correction tape) and you can edit your documents easily. Inserting and deleting words are very handy functions on computer word processing programs.

UNIX is the granddaddy of word processors. It was developed at Bell Laboratories in the early 1970's. If you are an experienced word processor you will find that UNIX is not very automatic, that you have to give the computer specific instructions for many tasks. But this aspect makes UNIX a very good program to learn word processing, because you can choose to operate the system almost just like an electronic type writer -- little frills, but no chills. Those of you learning to use a word processor for the first time will be able to adapt your typing experience to the computer system more easily than with a "fancy" word processor. Later, after you get used to the system, you can learn more complex commands to do more fancy functions.

Login to the computer. At the % prompt type **vi first** . The command **vi** stands for "visual editing" and gets you into the UNIX word processing system. What you have done here is to open a new file that will be called **first**. Notice that the system has put you at the top of the monitor, and that you can see a bunch of dots on the first character of each line below the top. You are almost ready to type, but before you type anything, read this carefully. **The first thing you have to do is give the system a command that tells it what to do**. This is probably the most confusing aspect of UNIX for people learning the program. It won't let you type a word until you tell it what you intend to do.

What happens if you try to type? The computer "beeps" at you! Again, it is saying "what exactly do you want me to do with this new file?" This can be solved by giving the computer a command. The last sheet in this booklet is a collection of UNIX word processing commands. Remove the page, and set it down before you. Look for the section entitled "Insert and replace." These are commands that can get you started. Now, type an **a** . This command tells the UNIX word processor to start typing words after the place where you saw your cursor. (The cursor is the blinking square that marks your place on the screen.) You can now type away. Type a paragraph that you make up -- keep it clean, however! Just type like you would on a type writer, press return at the end of a line, and you will move to the beginning of the next line. Don't try to make corrections just yet, though, that will take some practice! When you are done writing what you want, just stop.

Now, lets just imagine that you have completed an assignment and it looks good to you, and you want to stop editing for the time being. Press the **ESC** key. You have just told Mr. UNIX that you are done writing for the moment, and to expect a new command. Watch what happens if you try to type now -- Mr. UNIX beeps back at you! Here you see that the **ESC** key acts just like a toggle switch that you can turn on and off. Give another **a** command. Type another line. Hit **ESC**, and then try to type. You

will have Mr. UNIX beeping at you! Do you see how you can alternate between typing and giving commands?

At first it may take you a couple of minutes to grow accustomed to Mr. UNIX the word processor. You can always tell when the typing toggle is turned off when you hear Mr. UNIX frantically beeping at you when you are typing! After you have experimented with the **a** command you will find that you may want to go back up into your document to correct mistakes. But how do you do that? Well, take a look at the vi quick reference and see if you can find a command that will move your cursor to the place you want, and then find another command that will help you edit. For example, you will find the **j** command will move you down a line on the same column, and that the **k** command will move you up a line on the same column. The trick is to position the cursor where you will need it, then to use a command that will make changes. The **d** command will delete the next character, the **dw** command will delete the next word. Once you have deleted a misspelled word, you can give the command **a** and retype in the correct spelling.

Keep at it, don't give up. It may seem frustrating at first to get this system to work. But don't worry about making mistakes, because that is one of the best ways to learn. Computers seem to have a way of making us feel dumb. Don't fall in the trap of being self conscious about making mistakes as you learn. If you get exasperated, just stop and rest for a minute, and think "now, there must be some small thing I'm doing that the system doesn't like, can I figure out what it is?" Be thick skinned and don't take the beeps of Mr. UNIX personally!!!? You will get the problem solved.

After you are done experimenting with your first file you will want to save it. Press the **ESC** key to make sure that you have turned the typing toggle off. Now type **ZZ** (with capitols) and you will have automatically saved and exited Mr. UNIX the word processor and entered the shell. If you want to make sure you have a file called **first** type the **ls** command. You will get a list that should include the **first** file. You have really created your first file.

You now can also see that getting back into **first** is very easy. Just type **vi first** from the shell and there is your old friend Mr. UNIX the word processor displaying the first file you created. You could now do some more writing or editing and save **first** again by turning the word processing toggle off (hitting the **ESC** key) and typing the command **ZZ** . You will have edited the **first** file and saved the changes, while erasing the old first file.

Note: You may have wished to keep your original first file and dropped your changed version. This is possible, as we see in the vi quick reference sheet, by typing :q! instead of ZZ. Once you get started with the UNIX system you will find that you can do just about anything you want with just the commands on the vi quick reference sheet.

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Deleting Files

It seems unlikely now, but I am sure that you will find that by the end of the semester you will have piles and piles of files. There will come a time when you will want to do some housekeeping and get rid of the files you don't want. After all, you will have limited space to store your files. However, before we get into deleting files, an important thing should be brought to your attention. Once you delete a file, it is gone, vanished in thin air. Be very careful about deleting a file. An unacceptable excuse will be "I'm sorry I couldn't get my story in by deadline, I accidentally deleted it." You are solely responsible for having the assignment in on time, and you will have to rely on your computer competence to do so. This is not to scare you, but to make you realize that you have to be careful. Don't delete a file until you are absolutely sure that it is expendable.

The **rm** command "removes" files from your directory. Test this program out. Go into the **vi** procedure and create a file. Save it using the **ZZ** command. Now that you are back in the shell, type **rm** and the name of the file you created. Now type **ls** and the % prompt. You should find that the file you created has been removed. Remember, be very careful with the **rm** command. You are destroying files forever!.

Sending, Receiving, and Printing Files

The last important function you need to know deals with communication between the users of the COMM 200 computer system. In a news room, reporters type stories that are sent directly to an editor, and then to the composing station. We will operate in a similar manner. You will be sending all of your assignments and some of your exercises to me by "electronic mail." In other words, you will send copies of your files directly to my computer account. Now, you ask, why not just hand in paper? Well, paper is expensive, and why bother printing out "hard copy" and physically walking it down to me when you can, with one command, send me a copy of your work which I can access the next time I am on the machine. This saves time and money.

Another feature of this system is the convenience it gives you to contact me at any time you want. You may, for instance, be typing an exercise, and be very curious about my impression of a sentence you used. You could wait until my next office hour, or before the next class to ask me about it. Or you could send me a note, and I could reply the next day when I use the system. This is truly a great feature of electronic mail, it gives users the freedom to correspond at will. You can also send notes to other members of the class, but remember about "big brother." There is no reason why you can't use the system to make connections, etc., but don't bother people. Your message always contains your name, and the recipient will know who you are!

The Mail Command

By now you should be familiar with the login procedure. Login to the computer and wait at the % prompt. We can use the mail command to read mail from other users and to send mail to other users. Let's first try checking to see if anyone has sent us mail. Type **mail** at the % prompt and press return. You should see a note I sent to the class printed on your screen. Notice that the % prompt has been replaced with a ? prompt. This means that we are still in the **mail** procedure and that the computer is expecting us to do something with this letter. You now have the choice of saving or deleting the file. Suppose that this was a graded version of your first assignment, you would want to save it. You would type **s assign1** and you would have received the file from me and saved it in your own file named "assign1." If you already had a file by that name you could have saved it in a different file by typing **s assign1a** for example. You could then view the comments I made by using the vi procedure and looking at your file. It is also very simple to delete mail. At the ? prompt type **d** .

The mail procedure works the same way through a series of messages. If you have more than one message, the system will move to the next one. The order of the messages is the last one sent to your mailbox is viewed first, followed by earlier messages. Once you have decided what to do with all your messages, the mail procedure returns you to the shell.

To send mail it is best to use the vi editor and create a file. You then send the file to the user you identify. However, there is another quicker way to send mail, okay for short messages, but not long ones. You can simply type **mail kuehn** (you could substitute any users name instead of mine) and the mail procedure lets you type a message. However, it won't let you go back and edit the message if you make mistakes. Type the keys control and d at the same time when you are done with your message. The mail procedure will send your message and return you to the shell.

Create another message, this time longer, using the vi procedure. Now send this message to another user. This is done by typing the mail command, the name of the user, and the name of the file. Here is an example of what the command would look like. Suppose I wanted to send the file **instruct** to a student whose user name was smart. I would type at the % prompt **mail smart < instruct** . Notice that the arrow separates the name of the user from the name of the file. Try this procedure a few times and make sure you have it down. **This is a very important command because you will use it to send me your assignments and exercises!** It's ok if you want to send me some files to be sure I am receiving them, the next time I login I will send you some files back telling you whether or not I have heard from you. It is even better if you can get together with someone in the class and work on the terminals side by side. Send your friend a note, and have him/her send you one back. That would be very good practice, and you could immediately see whether or not you are successful. Keep at it!!

Printing Files

If you choose, you can print files. Some people like to have "hard copy" to edit their work before they hand it in, it seems that proofreading on paper is a bit easier for beginning word processors that editing on screen. We have a printer available for your use.

Before I discuss sending your files to the printer, I want to explain how to get the printer ready to work. You should make sure you are in the shell, check for the % prompt. Then walk over to the printer. You can turn it on if it is off, but make sure the "ON LINE" button is lit. This says that the computer is controlling the printer. Then you can go issue the print command, and walk back over to the printer and watch the print out. Wait until the printer stops, then push the "ON LINE" button. When this is off, you can remove your hard copy from the printer. You can do this by pushing the "FF" button. The paper will advance one sheet, and you will be able to tear your printout off at the perforation, without losing any of your document. Then push the "ON LINE" button once more, to reset the printer for others, and you can return to your terminal.

The print command is simple to execute. When you are in the shell at the % prompt all you have to do is type **lpr** and the name of the file you want printed and press return. For example, I want to print a file called **worker**. At the % prompt in the shell I type **lpr worker** . I would then get up and retrieve my printout from the printer.

PRACTICE!

By the time you reach this section of the manual you could be working right along learning new commands and having a good time. But I believe that most of us will be mucking around for a week or two, a bit baffled, and a bit frustrated by the computer system. Please don't give in. Contact me just as soon as you have a problem learning the system in the beginning of the semester. Our goal is to learn to use the system well enough so that we don't have to think about what we are doing as we use simple commands. I'm sorry to say that this will take some practice and some patience, but be optimistic! I will make myself available for on site help the second week of class, and please take advantage of the opportunity. Try to work out problems on your own first, but by all means don't be shy now, because you will need skill on the computer to earn a grade in this class.

As we grow accustomed to the system we will be learning new procedures. I will provide new sheets to add to this manual during the semester, so keep it with you. The vi reference guide is among the most useful of all the parts of this manual. I suggest you make a couple of back up copies and saving it. You may even wish to type the commands in a file and save them that way.

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